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| APPLICATION NO.         | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.    | CONFIRMATION NO. |
|-------------------------|-------------|----------------------|------------------------|------------------|
| 10/594,846              | 11/08/2006  | Makoto Iwai          | 811_107                | 3664             |
| 25191                   | 7590        | 09/17/2009           | EXAMINER               |                  |
| BURR & BROWN            |             |                      | HITESHEW, FELISA CARLA |                  |
| PO BOX 7068             |             |                      | ART UNIT               |                  |
| SYRACUSE, NY 13261-7068 |             |                      | PAPER NUMBER           |                  |
|                         |             |                      | 1792                   |                  |
|                         |             |                      | MAIL DATE              |                  |
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|                         |             |                      | PAPER                  |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/594,846             | IWAI ET AL.         |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Felisa C. Hiteshew     | 1792                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 02 June 2009.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-6 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5,8 and 9 is/are rejected.
- 7) Claim(s) 6 and 10 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ .  | 6) <input type="checkbox"/> Other: _____ .                        |

## DETAILED ACTION

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-6 and 8-10 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent No. 5,868,837 A (DiSalvo, et al).

The DiSalvo et al reference teaches a method of growing gallium nitride crystal, note entire reference. In an autoclave, the starting materials are added. The materials include a source of gallium, nitrogen and a flux material (sodium) at temperature ranging from 600° to 850° C, note examples. There is a flux material added to the starting materials. The flux material is sodium and can be other alkaline metal, note examples. The conditions of the autoclave to grow are about 1000c and high pressure. The pressure (based on calculation of N<sub>2</sub> from NaN<sub>2</sub>, the temperature employed and the volume of the reaction zone or based on the pressure of the nitrogen gas reactant in

the reaction zone at the temperature employed). For the method herein is ordinarily less than 120 atmospheres. The background of the invention teaches higher atmospheres. (See col. 1, lines 19-54; and col. 2, lines 4-11).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 5, 6 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,868,837 A (DiSalvo, et al) as applied to claims 1-4 above, and further in view of U.S. 2002-0158237 (Kelsey).

The DiSalvo et al reference teaches a method of growing gallium nitride crystal, note entire reference. In an autoclave, the starting materials are added. The materials include a source of gallium, nitrogen and a flux material (sodium) at temperature

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ranging from 600° to 850° C, note examples. There is a flux material added to the starting materials. The flux material is sodium and can be other alkaline metal, note examples. The conditions of the autoclave to grow are about 1000c and high pressure. The pressure (based on calculation of N2 from NaN2, the temperature employed and the volume of the reaction zone or based on the pressure of the nitrogen gas reactant in the reaction zone at the temperature employed). For the method herein is ordinarily less than 120 atmospheres. The background of the invention teaches higher atmospheres. (See col. 1, lines 19-54; and col. 2, lines 4-11).

The sole difference between the instant claims and the prior art is the addition of metals to the flux or a nitrogen gas under a total pressure of 300 atms to 12 atms and in the nitrogen source and seed. However, the Kelsey reference teaches making gallium nitride where two metals are used The metals can be Na, Li, Ca, K, Mg, and Ba, note page 2. Nor do the references teach using a system for hot isostatic pressing. However, in the absence of unexpected results, it would have been obvious to one of ordinary skill in the art to determine through routine experimentation the optimum, operable source and seeds in the DiSalvo et al reference in order to orientate in the desired direction and to lower impurities and to use more then one metal as the flux in order to increase the luminescence properties.

Apparatus limitations may have little weight in process claims. In re Tarcy-Honoch 158 USPQ 141, 150; Stalego v. Heymes 120 USPQ 473, 478 (CCPA); Ex Parte Hart 117 USPQ 193; In re Freeman 44 USPQ 116 (CCPA); In re Sweeney 72 USPQ 501 (CCPA).

It has been held that to be entitled to weight in method claims, the recited structure limitations therein must affect the method in a manipulative sense, and not to amount to the mere claiming of a use of a particular structure. *Ex parte Pfeifer*, 1962 C.D. 408 (1961).

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTOI-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felisa Hiteshew whose telephone number is (571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 4:00 PM with Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mikhail Kornakov, can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system. see <http://pair-direct.uspto.gov>.

/Felisa C. Hiteshew/  
Primary Examiner, Art Unit 1792

